Leverage, Value and Firm Scope

paper by

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a read by a non-expert

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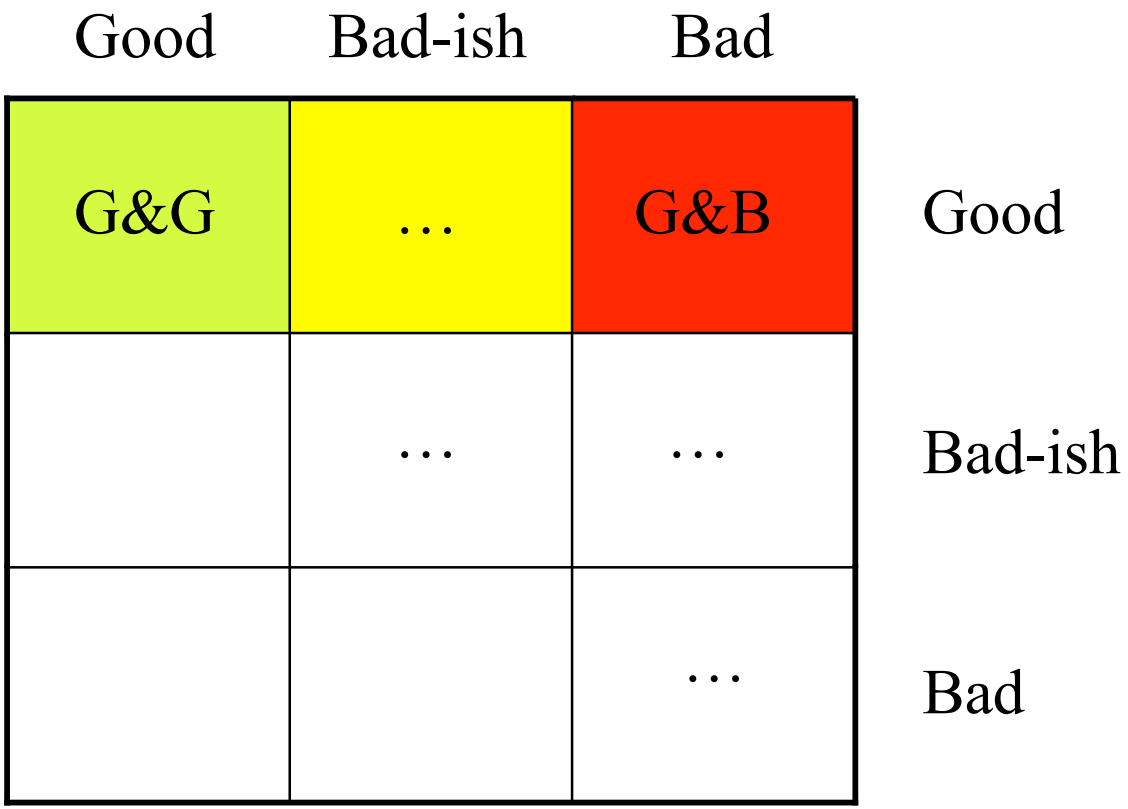

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Good & Good	G & Bad-ish	G & B
$X_1 - b_1 > 0$ $X_2 - b_2 > 0$	$X_1 - b_1 > 0$ $X_2 - b_2 < 0$ *but* $X + X - b - b > 0$	$X_1 - b_1 > 0$ $X_2 - b_2 < 0$ *and* $X + X - b - b < 0$

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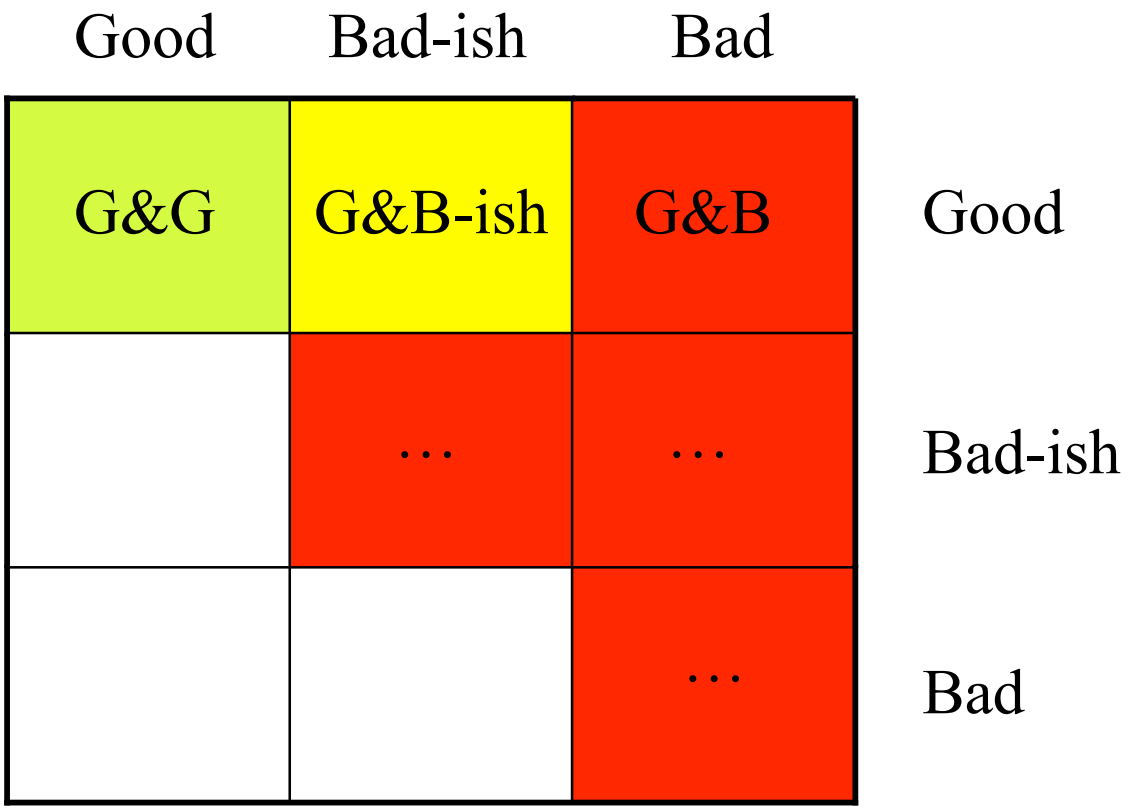

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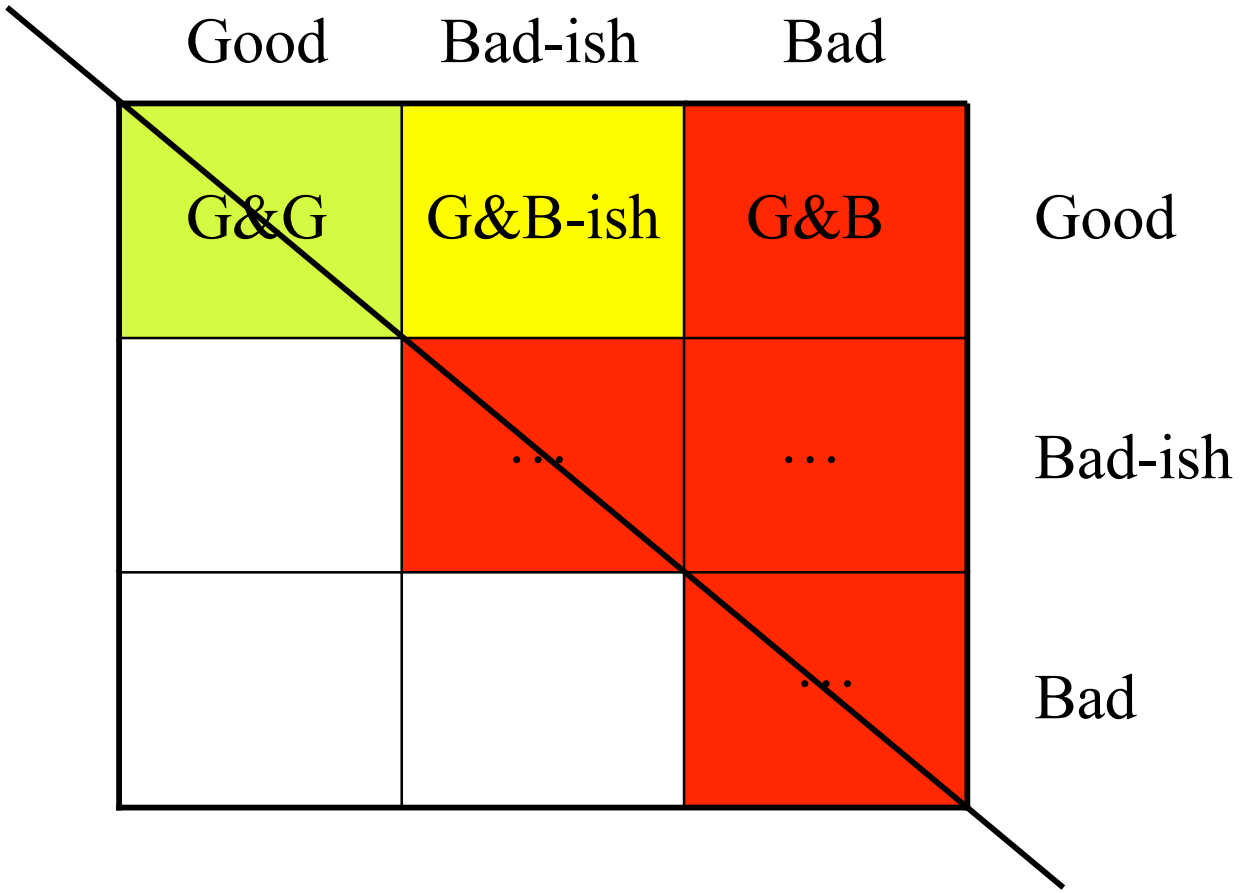

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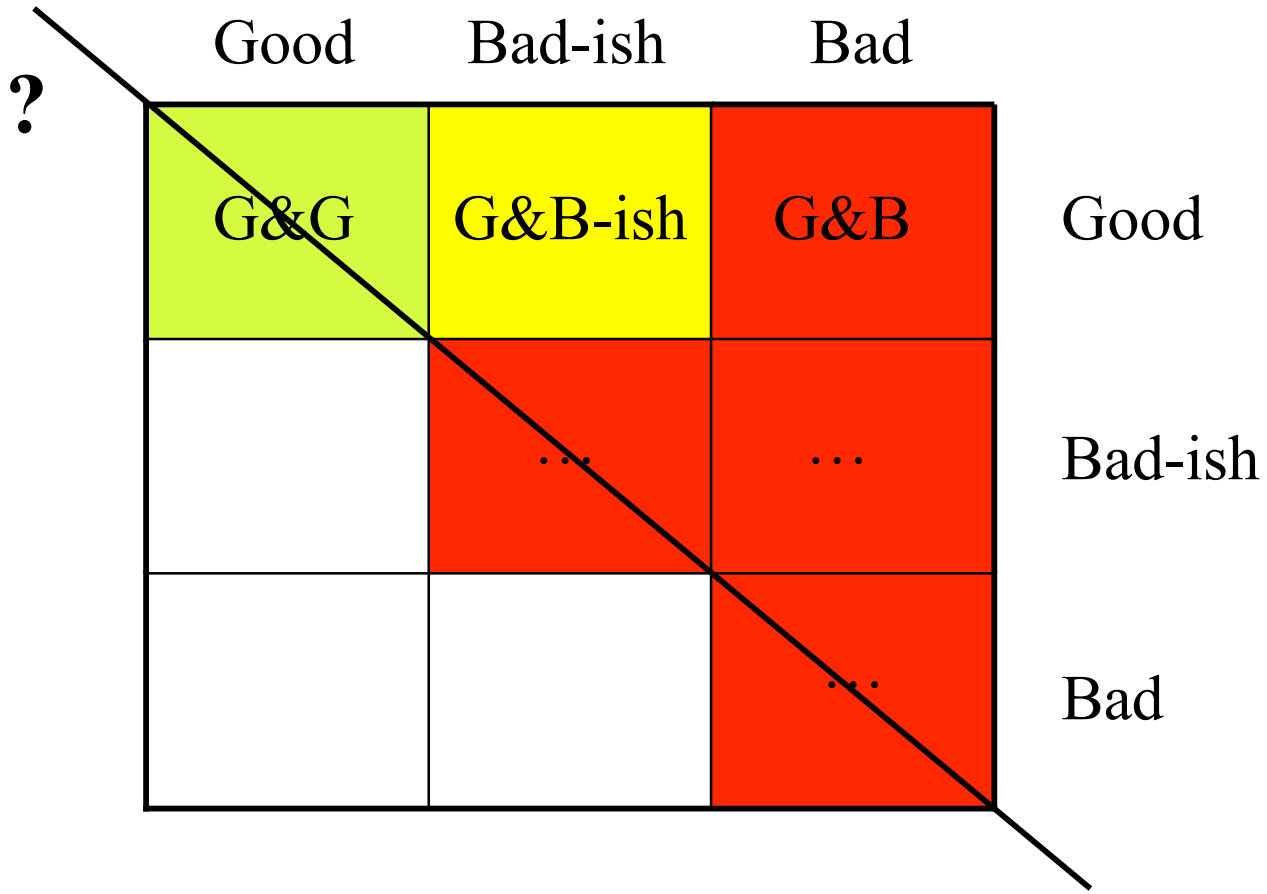

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Stand alone

Good & Good	G & Bad-ish	G & B
$X + X - b - b$	$(X_1 - b_1) + 0$	
$b + b$	$b_1 + X_2$	

(S

(B

Building the new model (I)

X_i : the (random) return from firm *i*

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Holding-Subs

Good & Good	G & Bad-ish	G & B
$X + X - b - b$	$(X_1 - b_1) + (X_1 - b_1)$	
$b + b$	$b + b$	

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Holding-Subs

Good & Good	G & Bad-ish	G & B
$X + X - b - b$	$(X_1 - b_1) + (X_1 - b_1)$	…
$b + b$	$b + b$	…

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Holding-Subs

Good & Good	G & Bad-ish	G & B
$X + X - b - b$	$(X_1 - b_1) +$ $(X_1 - b_1)$	…
$b + b$	$b + b$	…
X + X	**X + X**	**X + X**

(S

(B

(Tot

Building the new model (II) – *departure from MM*

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Good states	Bad states
$(X - b)(1 - \tau_S) >$	0
b	$X(1 - \tau_B)$

Shareholders' value (S)

Bondholders' value (B)

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Good states	Bad states	
$(X - b)(1 - \tau_S) >$	0	Shareholders' value (S)
b	$X(1 - \lambda)$	Bondholders' value (B)

$X(1 - \tau_S) + b\,\tau_S + X(1 - \lambda)$	Firm's value (S+B)

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Back to the simpler case of 1 firm

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b : amount borrowed

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_ : loss given default, to *bondholders*

Good states	Bad states	
(X – b) (1- _) > 0	0	Shareholders' value (S)
b	X (1- _)	Bondholders' value (B)

X(1- _) + b _ + X (1- _)	Firm's value (S+B)

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The case of 2 firms

Stand alone

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$(X + X - b - b)$ $(1- \_)$	$(X_1 - b_1)\,(1- \_)$	…
$b + b$	$b_1 + X_2\,(1-\_)$	…

(S

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X + X	**≠ X + X**	**≠ X + X**

(Tot

Building the new model (II) – *departure from MM*

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Holding-Subs

Good & Good	G & Bad-ish	G & B
$(X + X - b - b)$ $(1- \_)$	$[(X_1 - b_1) + (X_1 - b_1)]$ $(1- \_)$	
$b + b$	$b + b$	

(S

(B

X + X	**≠ X + X**	**≠ X + X**

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- Empirical tests? (*if existing empirical works are not precisely the motivation to this!!*)
- How to AB-ize the model?